



# TRICARE Data Quality Training Course

May 2009

TRICARE Management Activity (TMA)  
Defense Health Services Systems  
United States Department of Defense Military Health System





# DHSS Supports Enterprise-Wide Data Quality Efforts



## Objectives

- Why data quality matters
- How our tools affect data quality
- How you can use this information in your data quality program

## DHSS

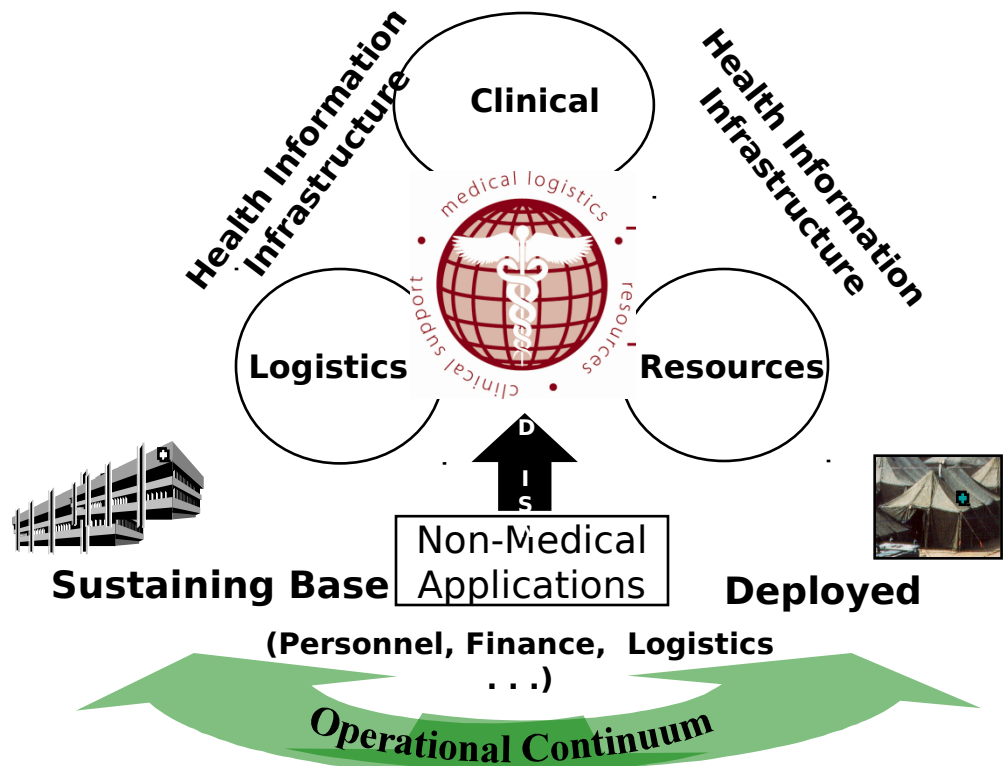
- MHS centralized data store
- Receive, analyze, process, and store 100+ terabytes of data
- Thousands of users worldwide



# What is DHSS?

## 40,000 Foot View

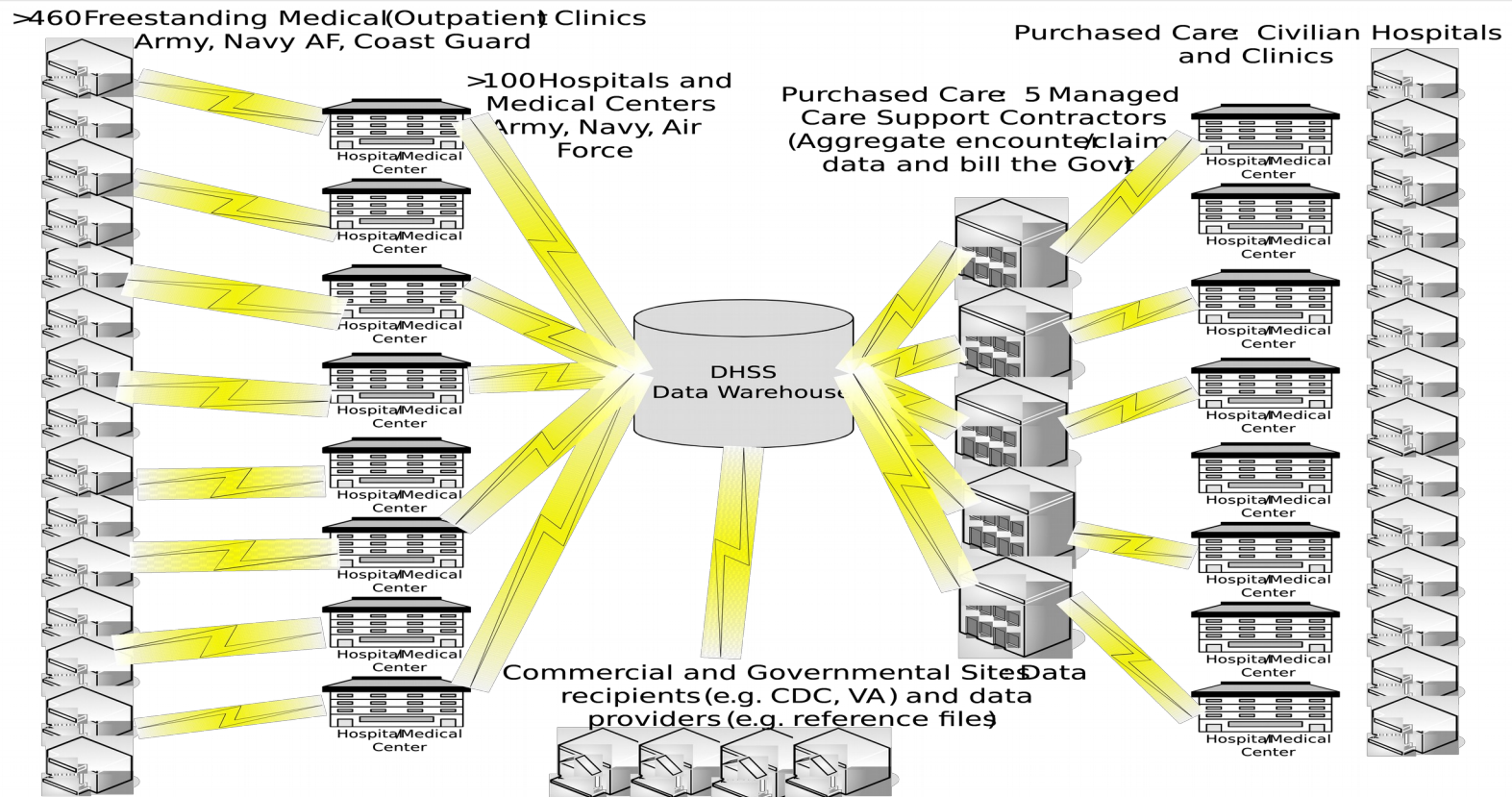
- TRICARE decision support that makes the vision of the Military Health System Plan possible
- Military Health System technology that integrates and standardizes clinical, resource, population, logistics, and other referential information





# What is DHSS?

## 20,000 Foot View



> 12 Million Beneficiaries

Direct (Military Provided) Care:	Inpatient: 250,000 Annually Outpatient: 30 Million Annually
Purchased (Civilian Provided) Care	Inpatient Claims: 800,000 Annually Outpatient "Claims": 100 Million Annually

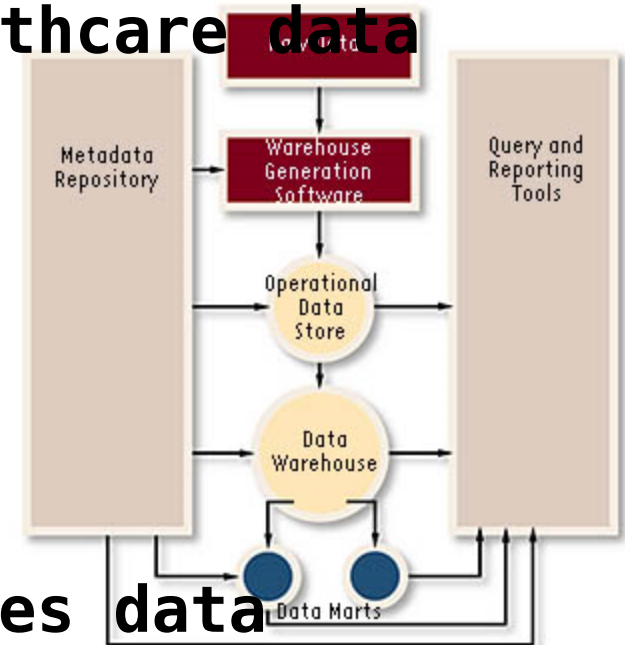


# DHSS - The Healthcare Data Warehouse

## 5,000 Foot View

- **A wide variety of healthcare data**

- > Rx, Lab, Rad, etc
- > Inpatient Episodes
- > Outpatient Encounters
- > Survey Data
- > Enrollment Data
- > Reference Data
- > Claims Data



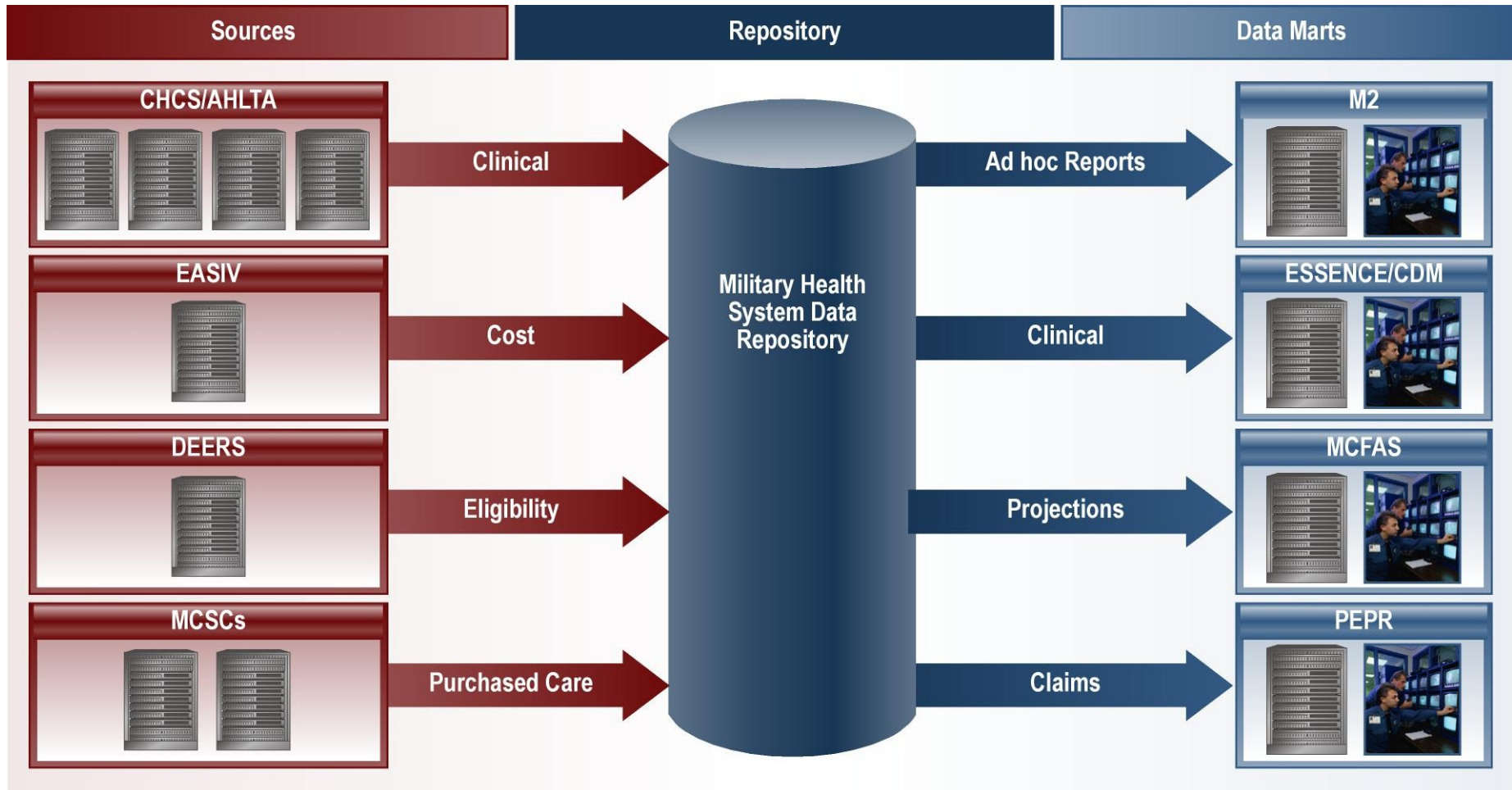
- **Collects and distributes data**

- > Daily, weekly, and monthly
- > From over 460 freestanding clinics and 100 hospitals
- > From thousands of civilian facilities
- > Worldwide geographic distribution



# DHSS Architecture

## 1,000 Foot View





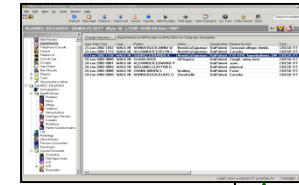
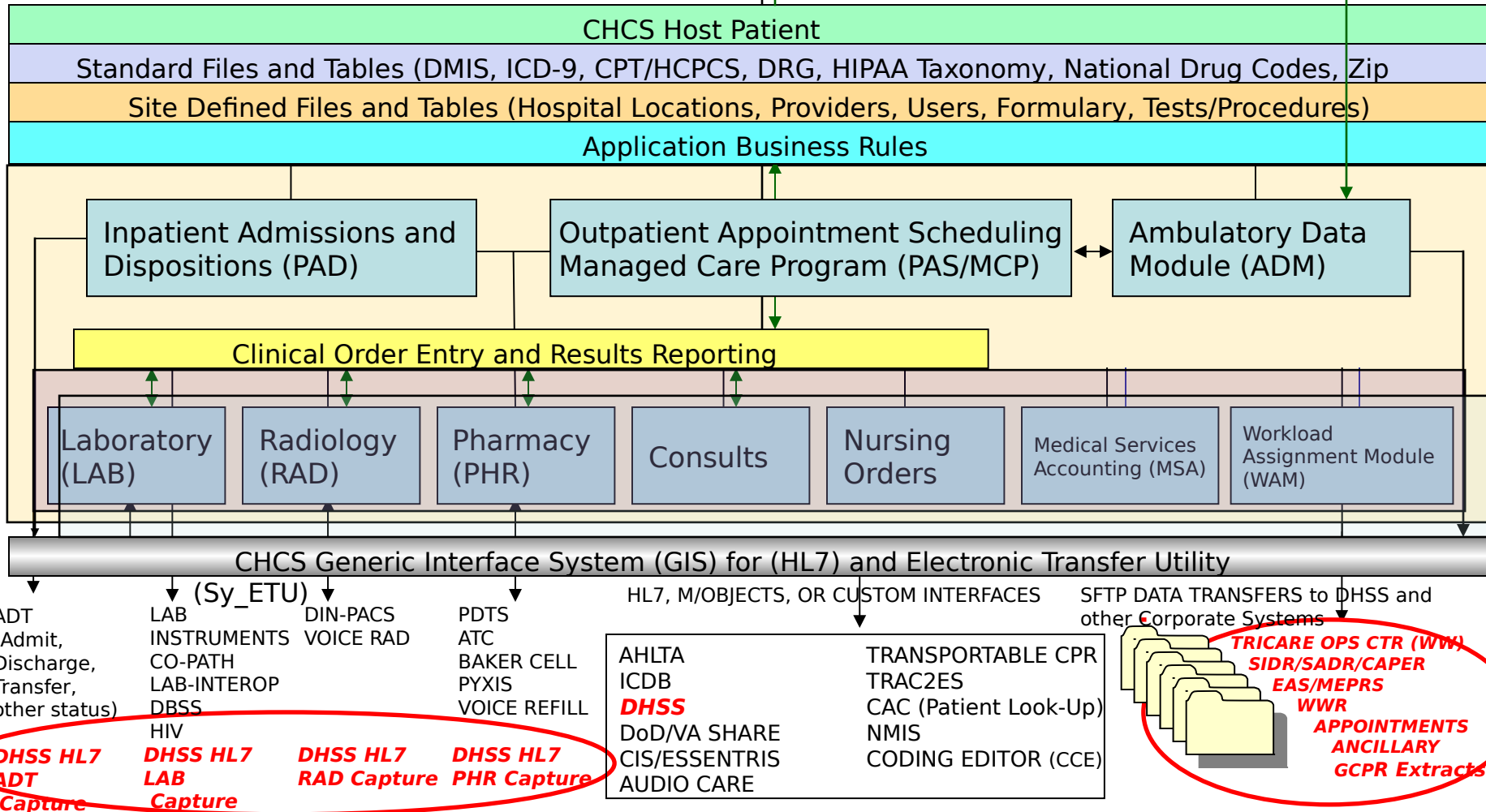
[illegible]CLINICAL DATA  
REPOSITORY

Diagram courtesy of [Charlene Colon](#),



# MDR (MHS Data Repository)

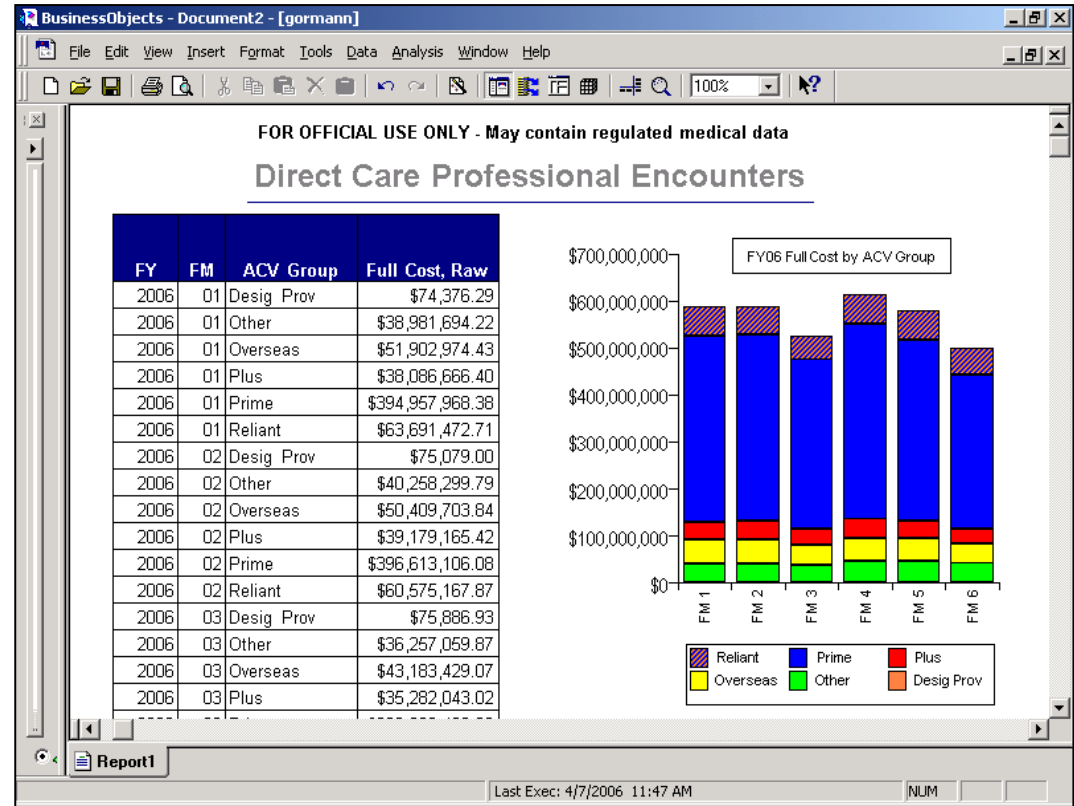
- Centralized data capture and validation of MHS data worldwide
- More than 5 billion records on-line with 10+ years of data
- Provides repository for other systems/applications to receive extracts
- Typical users: small cadre of high-level data analysts





# M2 (MHS Management Analysis & Reporting Tool)

- Powerful ad hoc query tool for detailed trend analysis such as patient and provider profiling
- Typical users: Data analysts skilled in Business Objects software





# DHSS Data Quality Requirements



- Capture and catalog data files
- Assess and monitor data completeness
- Perform data quality feed node assessments
- Develop data quality software that:
  - Performs automatic data quality checks
  - Implements data quality assessments
  - Provides metrics and manages perspective of the files' data quality



# DHSS Data Quality Metrics



- Integrity: is it secure?
- Relevancy: is it appropriate?
  - Reliability: is it rationally correlated?
  - Validity: is it sound?
- Consistency: is it free from contradiction?
  - Uniqueness: is it free from duplication?
- Timeliness: is it available when needed?
- Completeness: is it whole?
- Accuracy: is it free from error?



# Data Quality Tools



- Real-time key data quality/completeness DB2 database for:
  - ✓SIDR SADR HL7 PDTs Appointment Ancillary
- Database updated daily and scripted to provide “event-driven” alerts via e-mail for critical data quality areas
- DMIS IDs “real time” and “snapshot” views of key data completeness measures
- Web and front-end access for standard reports
- Multilayer data comparisons from raw to processed data for procedure-based



# Data Tracker

- Essentially a “Mini MDR/M2” where data are processed in real time
- Data Tracker tools and reports
  - SIDR and SADR, HL7, Appointment, Ancillary, TED Inst/Non-Inst primary reports provide:

- File based accounting (e.g. Gap reports)
- Treatment based accounting (e.g. reports based on care date)
- Timeliness reporting (e.g. lag from care rendered date to ingest)
- Other statistical reports including benchmarking against WWR
- Statistical Process Control Alerting for SADR anomalies

## Other Data Tracker tools and reports

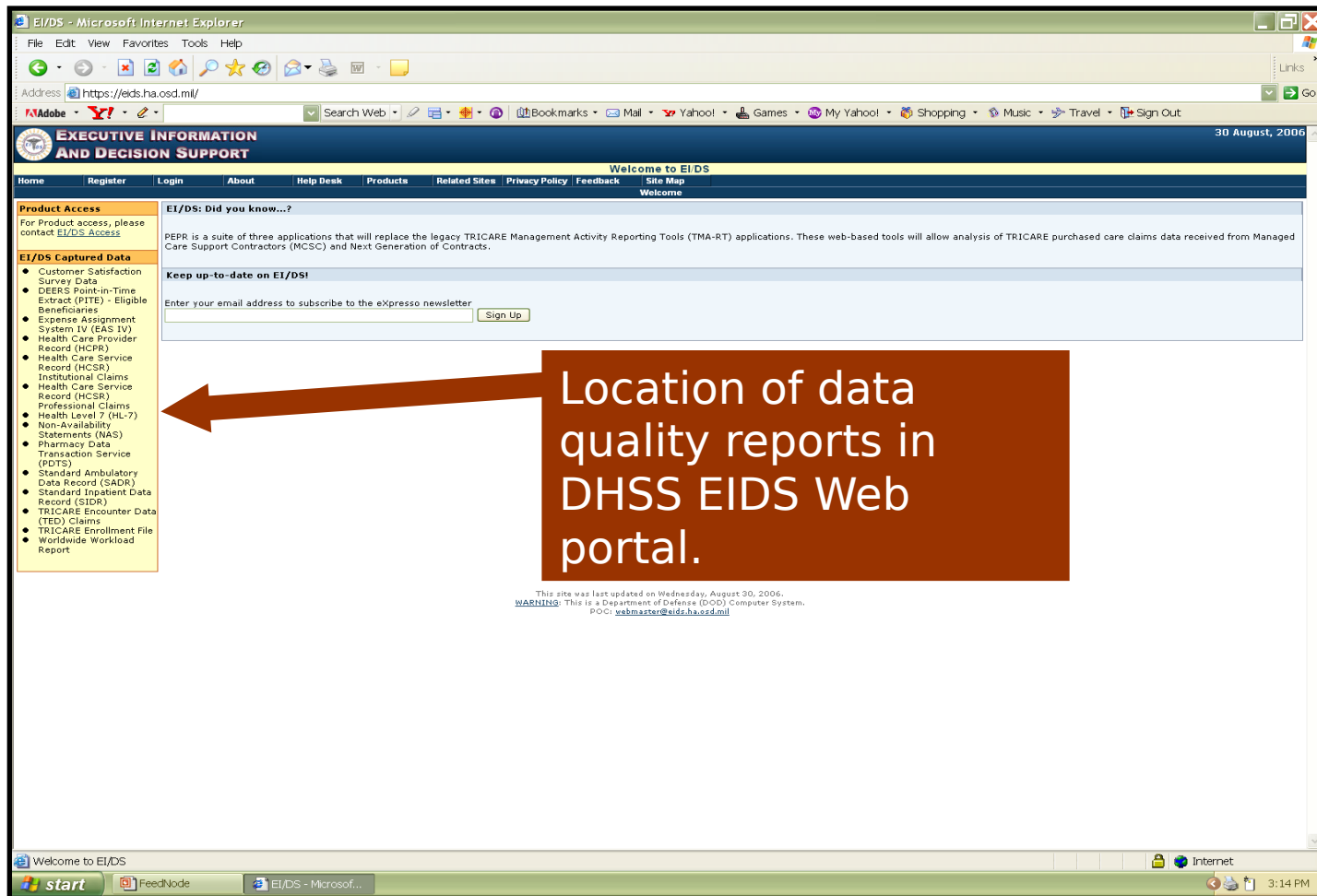
- Monthly “Hutchinson-like” report (SIDR and SADR vs WWR Benchmarking)
- Ad Hoc Queries to the Data Tracker
- GCPR & PDTs Gap Reports – Receipt Reports – Pull Reports

## Current Data Tracker reports on the DHSS (EIDS) Web site

- Daily SADR by HOST DMIS (The “*What Was Received Yesterday*” Report)
- Daily SADR by Treatment ID – 90 Day (The daily “*90 Day Roller*” Report)
- Monthly SIDR by Treatment DMIS



# DHSS (EIDS) Web Portal Resource

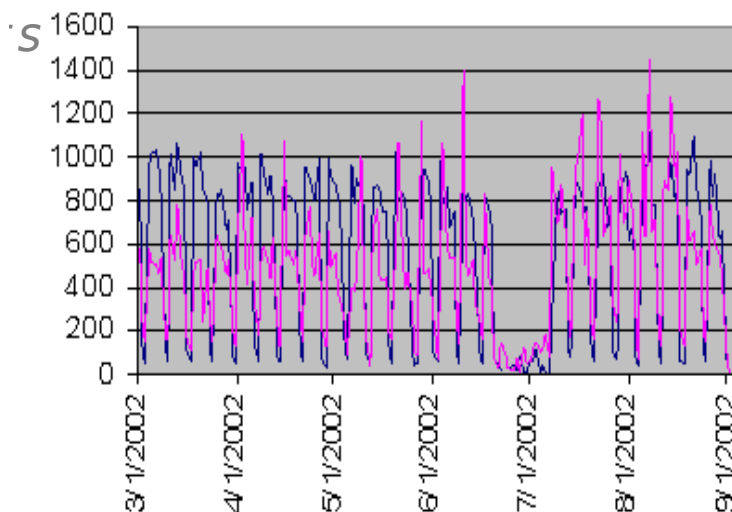
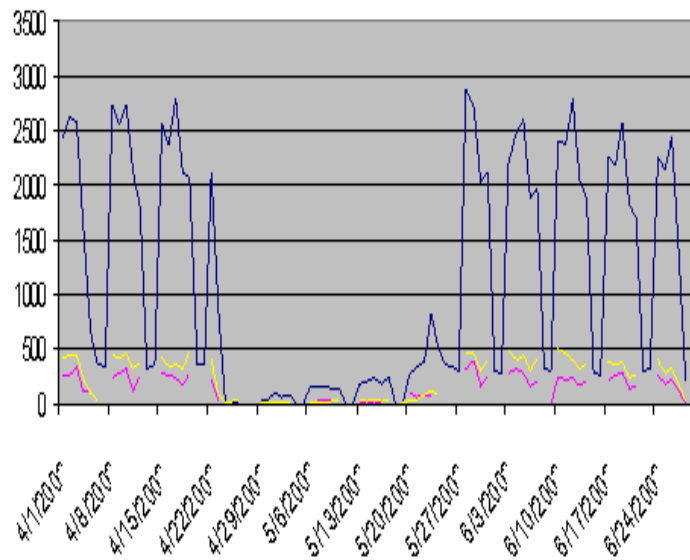




# Data Quality Assurance

## Start with Run Charts

Facilities showing gaps in daily outpatient encounter data receipt. Investigation and data recovery actions required. *Data set has no correlation with other source*

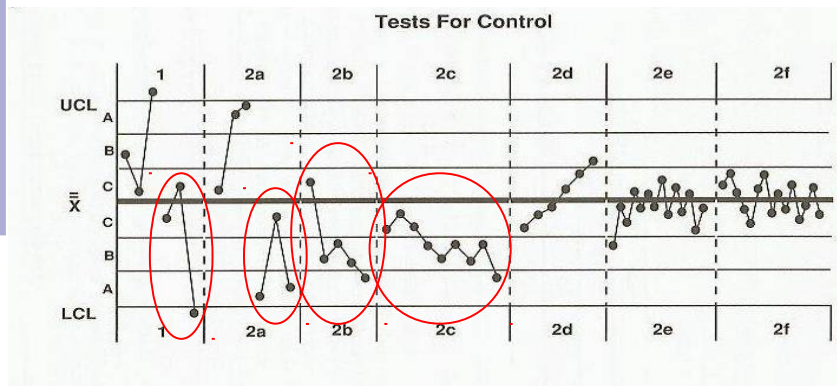
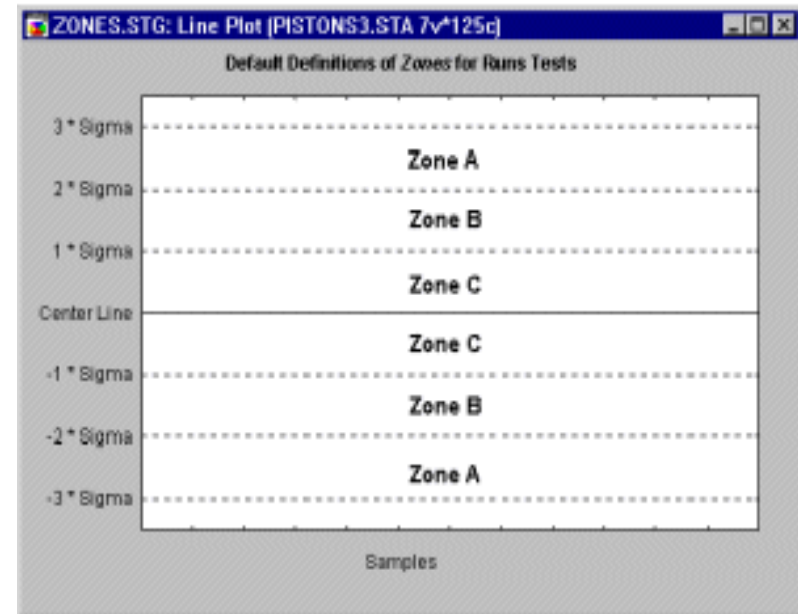




# The Future: Data Completeness Determination

## “Completeness” as a Process Control Problem

- Amenable to Statistical\Process Control
- Examine for Special Cause Variation
- Signals when a problem has occurred
- Detects variation
- Allows “Process Characterization”
- Reduces inspection need

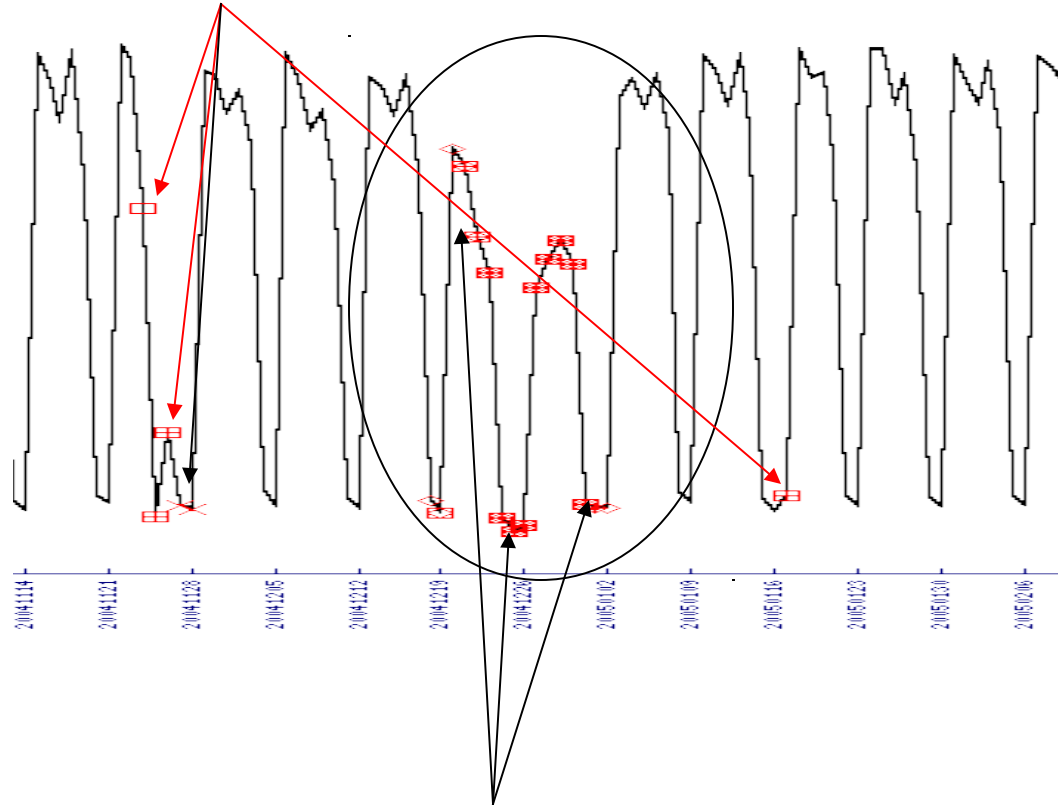




# The Future: Compare Each Day To Itself

Project previous data to today then compare this projection with newly arrived data.

DMIS ID  
Red Boxes/X's/etc indicate "Alerts" sent to DQ Team via automated email



**Holiday Logic Pending**

*Chart: Encounters by Day*



# The Future: Identifying Data Completeness Problems

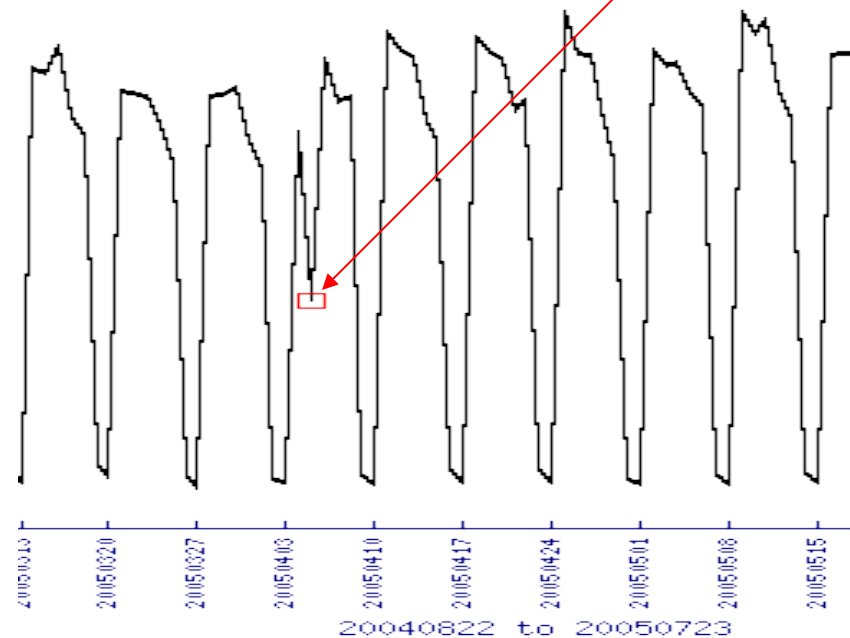


Red boxes/Xs/etc. indicate automatic e-mail “Alerts” to the data quality team.

## Alerting and Notification Issue

How do you identify and present “possible” problems when:

- the “problem” is transient,
- it is one data point in a series,
- it is from one of a vast number of daily input data sources?



*Essentially a projection of previous data forward in time to today then a comparison of this projection with the newly arrived data.*

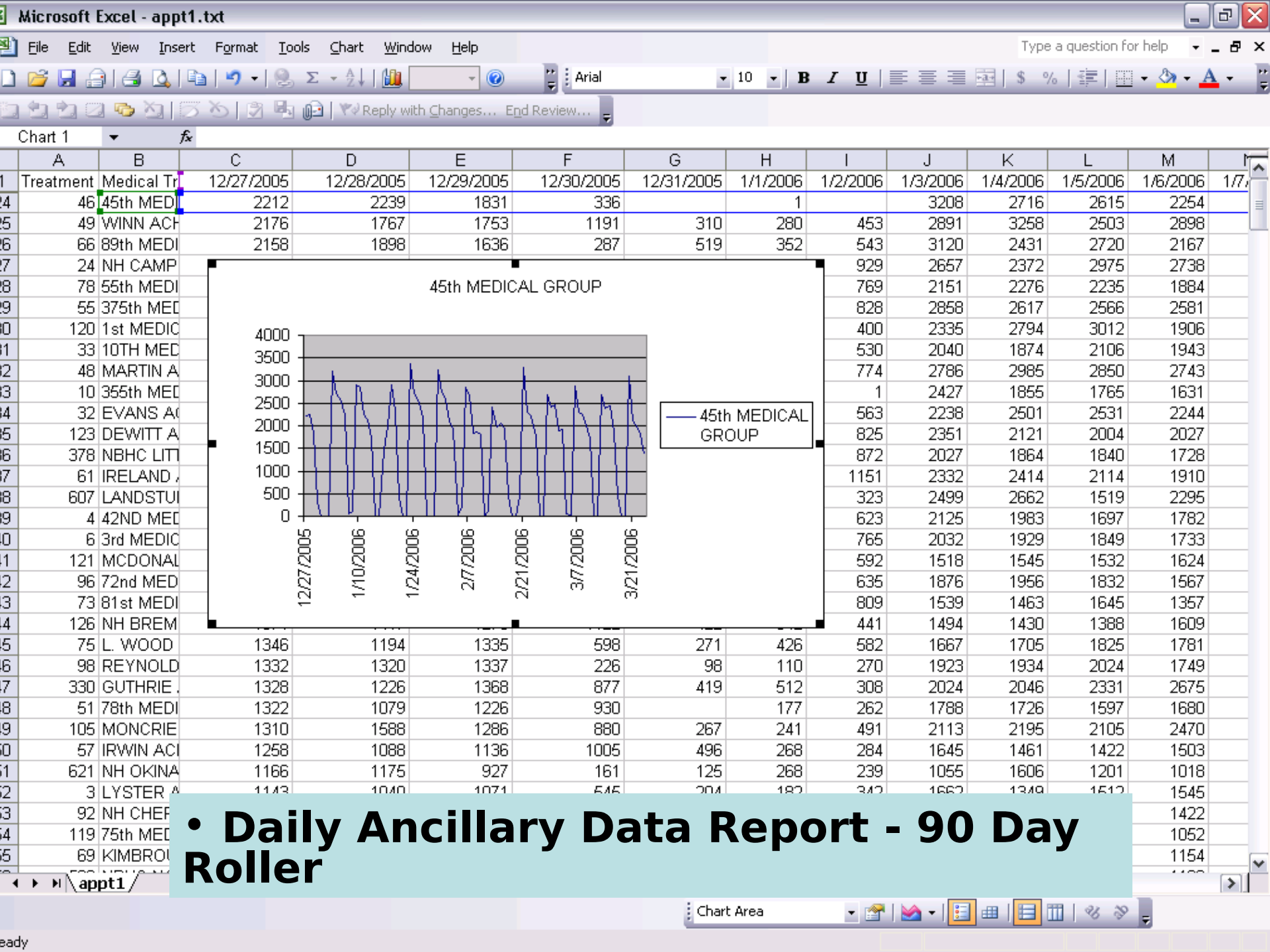


# Data Tracker Report Series including:

- SADR vs Appointment Tracking (a real-time "Hutchinson" Report )
- SADR vs Appointment Delta Alerting

	B	C	F	G	K	AA	AQ	BG	BX	B
1					SADR-includes appt inferred	Post Processed Appointment Indicator	SADR-does not include appt inferred	WWR		
2	DMISID	FACILITY	MONTH		A060109	H060109	S060109	W060112		
133	0015	9th MEDICAL GROUP BEALE AFB	Oct-04		3,722	3,624	3,720	3,715		
134	0015	9th MEDICAL GROUP BEALE AFB	Nov-04		3,664	3,586	3,663	3,659		
135	0015	9th MEDICAL GROUP BEALE AFB	Dec-04		3,579	3,495	3,574	3,575		
136	0015	9th MEDICAL GROUP BEALE AFB	Jan-05		4,007	3,902	4,006	3,994		
137	0015	9th MEDICAL GROUP BEALE AFB	Feb-05		3,785	3,686	3,782	3,773		
138	0015	9th MEDICAL GROUP BEALE AFB	Mar-05		4,886	4,743	4,883	4,846		
139	0015	9th MEDICAL GROUP BEALE AFB	Apr-05		4,136	689	4,136	4,123		
140	0015	9th MEDICAL GROUP BEALE AFB	May-05		4,000	3,926	4,000	3,986		
141	0015	9th MEDICAL GROUP BEALE AFB	Jun-05		4,539	4,446	4,539	4,525		
142	0015	9th MEDICAL GROUP BEALE AFB	Jul-05		3,600	2,685	3,598	3,310		
143	0015	9th MEDICAL GROUP BEALE AFB	Aug-05		4,681	4,216	4,672	4,292		
144	0015	9th MEDICAL GROUP BEALE AFB	Sep-05		4,173	3,551	4,163	3,571		
145	<b>015 Total</b>				48,772	42,549	48,736	47,369		
152	0101	20th MEDICAL GROUP SHAW AFB	Oct-04		7,815	6,368	6,050	6,369		
153	0101	20th MEDICAL GROUP SHAW AFB	Nov-04		7,182	5,740	5,278	5,748		
154	0101	20th MEDICAL GROUP SHAW AFB	Dec-04		6,808	5,780	5,416	5,792		
155	0101	20th MEDICAL GROUP SHAW AFB	Jan-05		7,523	6,495	5,863	6,488		
156	0101	20th MEDICAL GROUP SHAW AFB	Feb-05		7,371	5,853	5,050	5,860		
157	0101	20th MEDICAL GROUP SHAW AFB	Mar-05		8,905	7,347	6,279	7,354		
158	0101	20th MEDICAL GROUP SHAW AFB	Apr-05		8,158	6,938	5,775	6,953		
159	0101	20th MEDICAL GROUP SHAW AFB	May-05		7,453	6,121	5,482	5,965		
160	0101	20th MEDICAL GROUP SHAW AFB	Jun-05		7,767	6,249	5,786	6,231		
161	0101	20th MEDICAL GROUP SHAW AFB	Jul-05		6,319	3,415	4,590	3,405		
162	0101	20th MEDICAL GROUP SHAW AFB	Aug-05		8,801	6,085	8,440	6,073		
163	0101	20th MEDICAL GROUP SHAW AFB	Sep-05		7,850	2	7,850	5,687		
164	<b>101 Total</b>				91,952	66,393	71,859	71,925		







# EI/DS Tracking Reports

Select Report:

PDTs Gap

SADR Sites
SADR Size Discriminator
SADR Summary
SADR Tracking
SADR Tx DMIS ID Gap
SADR Tx DMIS ID Score
SADR Tx DMIS ID Tracking
SADR Visit Discriminator

SIDR
SIDR Gap
SIDR Army Gap
SIDR Tracking
SIDR Tx DMIS ID Gap
SIDR Tx Summary
SIDR Tx DMIS ID Tracking

HL7
HL7 Duplicate Submissions
HL7 Gap
HL7 Retransmission
HL7 Sites
HL7 Tracking

PDTs
PDTs Gap
PDTs Rx Gap
PDTs Rx Tracking
PDTs Tracking

GCPR
GCPR Gap
GCPR Sites
GCPR Tracking

WBAM0108	09/30/2002	09/30/2002 - 04:34:35	56	0108	WILLIAM BEAUMONT AMC
WOOD0075	09/29/2002	09/30/2002 - 01:47:21	21	0075	L. WOOD ACH
WOOD1511	09/29/2002	09/30/2002 - 01:47:39	163	1511	RICHARD G. WILSON CTMC
WOOD1519	09/29/2002	09/30/2002 - 01:47:53	1	1519	USA OCCUP HLTH CLIN-GOODFELLOW

## Files received with errors

/sourcedata/ads/sadr/ADGEIDSSA093002.BETH6201.d020930t015312 KGADS v2.3 NED					
Content errors	2	Total Records Failed			
	2	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA100102.LAND0606.d020930t184731 KGADS v2.3 NED					
Content errors	2	Total Records Failed			
	2	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA100102.LAND0805.d020930t184849 KGADS v2.3 NED					
Content errors	1	Total Records Failed			
	1	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA093002.FOXA0001.d020930t014717 KGADS v2.3 NED					
Content errors	9	Total Records Failed			
	9	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA093002.LEAV7297.d020930t224722 KGADS v2.3 NED					
Content errors	2	Total Records Failed			
	2	Non-printing characters in data			
/sourcedata/ads/sadr/ADGEIDSSA100102.KELL0086.d020930t230420 KGADS v2.3 NED					
Missing footer	1	Total Records Failed			
	1	Non-printing characters in data			

## Number of consecutive days since last SADR file received

Site ID	ADS Type	Medical Treatment Facility	Days Missing	Host
CAFB0085	KGADS v2.3 NED	27th MEDICAL GROUP	14	edwn35_sw
KELL0311	KGADS v2.3 NED	NATICK AHC	44	edwn35_sw
KELL8015	KGADS v2.3 NED	KELLER ACH TSC-PCM	73	edwn35_sw
LAND1449	KGADS v2.3 NED	249th COMBAT SUPPORT HOSPITAL (TOE)	26	edwn37_sw
LEAV1833	KGADS v2.3 NED	USADC SMITH	47	edwn35_sw
LEAV1835	KGADS v2.3 NED	USADC-DISCIPLIN BK3 #3 FT LEAVENWORTH	47	edwn35_sw
LUKE0009	KGADS v2.3 NED	56th MEDICAL GROUP	7	edwn35_sw
MAFB1748	KGADS v2.3 NED	341 DS/SGD	42	edwn35_sw
POLK1620	KGADS v2.3 NED	TMC-2-FT. POLK	80	edwn37_sw
POLK1621	KGADS v2.3 NED	TMC-3-FT. POLK	80	edwn37_sw
POLK1622	KGADS v2.3 NED	TMC-4-FT. POLK	80	edwn37_sw
RAFB0051	v2.1 NED	78th MEDICAL GROUP	4	edwn35_sw
RUCK0003	v2.1 NED	LYSTER ACH	27	edwn37_sw
TRIP0287	KGADS v2.3 NED	15th MEDICAL GROUP	5	edwn35_sw

Web site with pull down listing of Standard Data Quality and Data Completeness Reports



11

AM

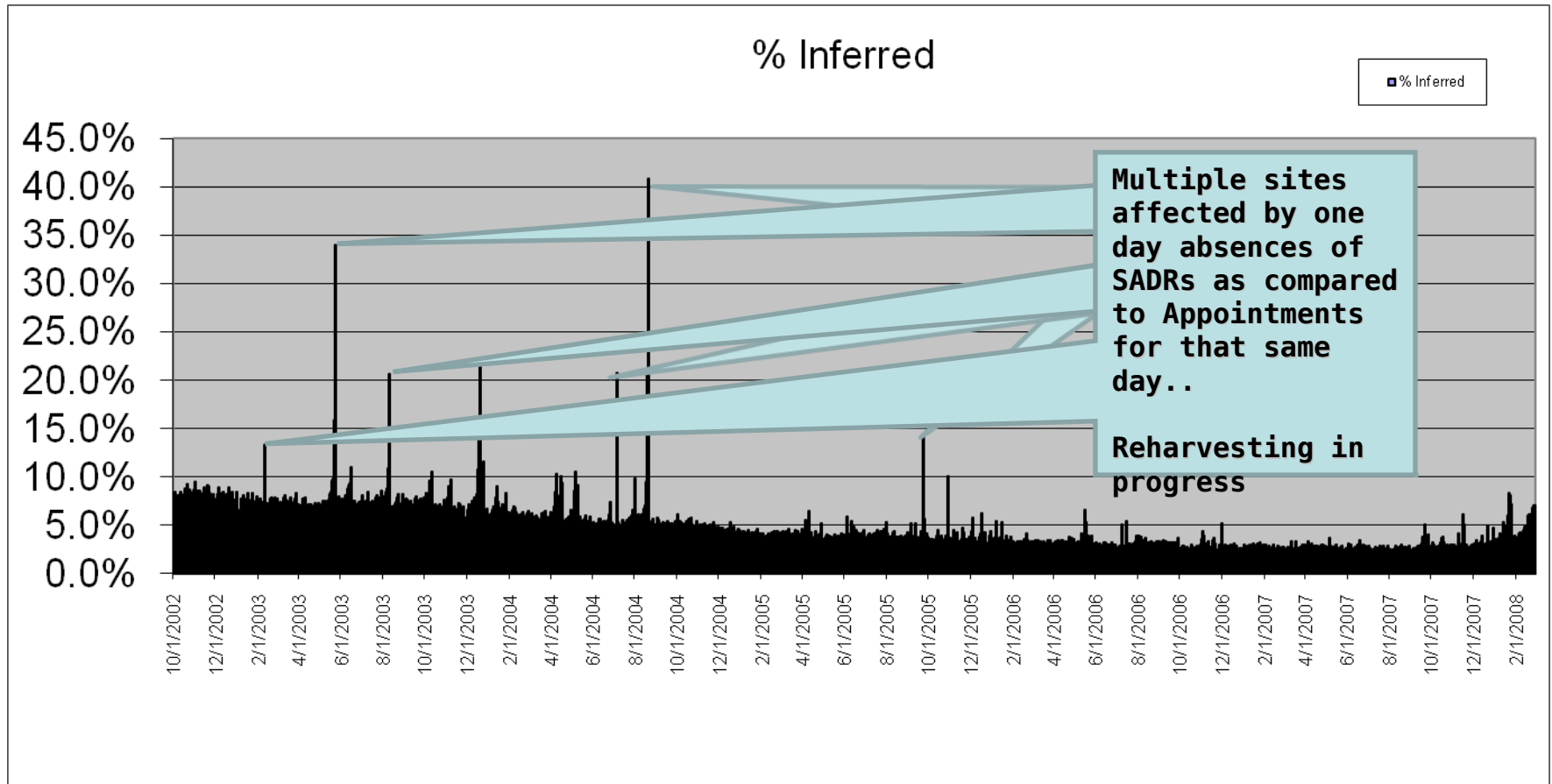


# Data Quality Tools – “Delta Detectors”

DMIS	Facility Name	FY	FM	Month	CAPER	SADR	CAPER visits / SADR
0208	BMC MCB CAMP PENDLETON	2008	05	Feb-08	2,291	2,290	100.04%
0208	BMC MCB CAMP PENDLETON	2008	06	Mar-08	2,554	2,316	110.28%
0297	NACC NEW ORLEANS	2003	01	Oct-02	.	2,140	0.00%
0297	NACC NEW ORLEANS	2003	02	Nov-02	.	1,999	0.00%
0297	NACC NEW ORLEANS	2003	03	Dec-02	.	1,978	0.00%
0297	NACC NEW ORLEANS	2003	04	Jan-03	.	2,281	0.00%
0297	NACC NEW ORLEANS	2003	05	Feb-03	.	2,114	0.00%
0297	NACC NEW ORLEANS	2003	06	Mar-03	.	2,134	0.00%
0297	NACC NEW ORLEANS	2003	07	Apr-03	.	2,300	0.00%
0297	NACC NEW ORLEANS	2003	08	May-03	.	2,271	0.00%
0297	NACC NEW ORLEANS	2003	09	Jun-03	.	2,192	0.00%
0297	NACC NEW ORLEANS	2003	10	Jul-03	.	1,964	0.00%
0297	NACC NEW ORLEANS	2003	11	Aug-03	.	1,704	0.00%
0297	NACC NEW ORLEANS	2003	12	Sep-03	.	1,715	0.00%
0297	NACC NEW ORLEANS	2004	01	Oct-03	.	1,621	0.00%
0297	NACC NEW ORLEANS	2004	02	Nov-03	.	1,106	0.00%
0297	NACC NEW ORLEANS	2004	03	Dec-03	.	1,658	0.00%
0297	NACC NEW ORLEANS	2004	04	Jan-04	.	1,497	0.00%
0297	NACC NEW ORLEANS	2004	05	Feb-04	.	1,315	0.00%
0297	NACC NEW ORLEANS	2004	06	Mar-04	.	1,417	0.00%
0297	NACC NEW ORLEANS	2004	07	Apr-04	23	1,329	1.73%
0297	NACC NEW ORLEANS	2004	08	May-04	1,095	1,099	99.64%
0297	NACC NEW ORLEANS	2004	09	Jun-04	1,184	1,184	100.00%
0297	NACC NEW ORLEANS	2004	10	Jul-04	1,116	1,116	100.00%
0297	NACC NEW ORLEANS	2004	11	Aug-04	1,116	1,089	102.48%
0297	NACC NEW ORLEANS	2004	12	Sep-04	860	860	100.00%
0297	NACC NEW ORLEANS	2005	01	Oct-04	1,206	1,206	100.00%
0297	NACC NEW ORLEANS	2005	02	Nov-04	1,157	1,158	99.91%
0297	NACC NEW ORLEANS	2005	03	Dec-04	981	986	99.49%
0297	NACC NEW ORLEANS	2005	04	Jan-05	1,156	1,158	99.83%
0297	NACC NEW ORLEANS	2005	05	Feb-05	981	983	99.80%
0297	NACC NEW ORLEANS	2005	06	Mar-05	1,113	1,113	100.00%



# Data Quality Tools – “Delta Detectors”





2008																							
Week of Year:																							
Tmt Par	Tmt Parent DMIS ID Name	Day of week																					
		Day of week	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	
0029	NMC SAN DIEGO	3	601	198	212	70	250	205	230	207	186	182	189	188	1	3	198	381	205	288	209	282	
0029	NMC SAN DIEGO	4	288	139	332	135	207	225	175	150	250	206	212	184	101	164	221	219	221	256	238	191	
0029	NMC SAN DIEGO	5	210	168	150	169	137	191	154		183	134	139	125	110	180	212	178	195	160	223	154	
0029	NMC SAN DIEGO	6	186	94	106	94	142	117	154	128	122	136	164	148	86	148	138	148	182	166	192	138	
0029	NMC SAN DIEGO	7	25	4	6	13	43	6	4	3	3	19	74	8	8	3	9	6	6	7	4	9	
0030	NH TWENTYNINE PALMS	1	4												2					1			
0030	NH TWENTYNINE PALMS	2	88		31	22	18	16		30	24	33	27	13			28	34		11	20	34	
0030	NH TWENTYNINE PALMS	3	96	22	24	13	16	14	1	29	27	32	26	3			20	38	23	12	29	35	
0030	NH TWENTYNINE PALMS	4	28	28	28	23	22	29	24	48	27	40	39	20	20	20	23	25	19	12	17	22	
0030	NH TWENTYNINE PALMS	5	37	31	27	25	23	28	32		27	28	6	22	2	21	26	38	26	11	17	61	
0030	NH TWENTYNINE PALMS	6	19	27	22	13	21	15	8		43	21	6	14	9	12	15	18	26	15	13	13	
0030	NH TWENTYNINE PALMS	7	1			1						2		1								2	
0032	EVANS ACH-FT. CARSON	1	1						1								1					2	
0032	EVANS ACH-FT. CARSON	2	48	1	25	22	20	27	2	27	26	31	33	41	2		54	77		34	30	34	
0032	EVANS ACH-FT. CARSON	3	60	21	27	19	30	26	23	11	23	28	25	34			42	48	32	44	64	55	
0032	EVANS ACH-FT. CARSON	4	25	23	21	27	24	37	19	17	28	20	34	23	48	43	39	36	32	30	54	41	
0032	EVANS ACH-FT. CARSON	5	20	21	19	7	22	29	18		22	20	69	20	37	47	42	42	31	39	56	37	
0032	EVANS ACH-FT. CARSON	6	22	19	19	23	16	13	14		15	16	23	10	46	36	38	30	28	41	33	24	
0032	EVANS ACH-FT. CARSON	7	1			1				1	1	1		1		1	1		1				
0033	10TH MED GROUP-USAF ACADEMY	1																		2			
0033	10TH MED GROUP-USAF ACADEMY	2	23		10	13	9	8		11	10	10	10	5			13	11	1	9	10	5	
0033	10TH MED GROUP-USAF ACADEMY	3	19	6	5	11	8	10	7	6	11	8	3	3			7	12	7	9	10	12	
0033	10TH MED GROUP-USAF ACADEMY	4	11	6	9	9	9	9	12	7	6	10	10	9	4	8	8	6	5	10	8	7	
0033	10TH MED GROUP-USAF ACADEMY	5	7	6	7	8	6	7	12		11	2	1	12	5	11	7	7	4	10</			



# Data Quality Tools – “Delta Detectors”

DMISID	FACILITY	FY	FM	MONTH	Appr Inferred	Raw SADR	RAW SADRs - % Less	Ext Consistency raw SADR	WWR
					AApr08	SApr08	than Inferred	as % of Same Month WWR	WApr08
0037	WALTER REED ARMY MEDICAL	2007	02	Nov-06	72,681	70,099	96%	109.74%	63,880
0037	WALTER REED ARMY MEDICAL	2007	03	Dec-06	62,404	60,369	97%	110.57%	54,600
0037	WALTER REED ARMY MEDICAL	2007	04	Jan-07	73,535	71,146	97%	110.88%	64,163
0037	WALTER REED ARMY MEDICAL	2007	05	Feb-07	59,960	57,825	96%	109.53%	52,794
0037	WALTER REED ARMY MEDICAL	2007	06	Mar-07	72,419	69,961	97%	108.13%	64,700
0037	WALTER REED ARMY MEDICAL	2007	07	Apr-07	69,736	67,207	96%	111.18%	60,449
0037	WALTER REED ARMY MEDICAL	2007	08	May-07	73,889	71,046	96%	113.68%	62,496
0037	WALTER REED ARMY MEDICAL	2007	09	Jun-07	69,011	65,868	95%	114.19%	57,684
0037	WALTER REED ARMY MEDICAL	2007	10	Jul-07	64,747	62,396	96%	110.16%	56,640
0037	WALTER REED ARMY MEDICAL	2007	11	Aug-07	69,316	66,869	96%	117.63%	56,848
0037	WALTER REED ARMY MEDICAL	2007	12	Sep-07	62,279	58,674	94%	125.49%	46,756
0037	WALTER REED ARMY MEDICAL	2008	01	Oct-07	78,299	73,914	94%	123.55%	59,824
0037	WALTER REED ARMY MEDICAL	2008	02	Nov-07	69,506	66,624	96%	119.48%	55,761
0037	WALTER REED ARMY MEDICAL	2008	03	Dec-07	57,473	54,954	96%	118.20%	46,491
0037	WALTER REED ARMY MEDICAL	2008	04	Jan-08	75,470	62,533	83%	99.77%	62,679
0037	WALTER REED ARMY MEDICAL	2008	05	Feb-08	68,328	65,453	96%	117.01%	55,939
0037	WALTER REED ARMY MEDICAL	2008	06	Mar-08	62,227	62,227	100%	105.35%	59,066



# Data Quality Tools – “Interface Monitoring”

Map of CHCS Sending Facilities to EIDS Operations Site ID and DMIS ID					Msg Receipts at EIDS - March 2008 - By Sending Application						
CHCS Sending Facility	EIDS Ops Site ID	DMIS ID	Medical Treatment Facility	Service	IV	LAB AP	LAB CH	LAB MI	MED	RAD	RX
A1411	0110	0110	DARNALL ACH-FT. HOOD	A	Y	Y	Y	Y	Y	Y	Y
HP0125	0125	0125	MADIGAN AMC-FT. LEWIS	A	Y	Y	Y	Y	Y	Y	Y
A1631	0131	0131	WEDD ACH-FT. IRWIN	A	Y	Y	Y	Y	Y	Y	Y
HP0330	0330	0330	GUTHRIE AHC-FT. DRUM	A	N	Y	Y	Y	N	Y	Y
HP0607	0607	0607	LANDSTUHL REGIONAL MEDCEN	A	Y	Y	Y	Y	Y	Y	Y
A0611	0612	0612	121st GEN HOSP-SEOUL	A	Y	Y	Y	Y	Y	Y	Y
N68094	0024	0024	NH CAMP PENDLETON	N	Y	Y	Y	Y	Y	Y	Y
N68095	0028	0028	NH LEMOORE	N	Y	Y	Y	Y	Y	Y	Y
N00259	0029	0029	NMCC SAN DIEGO	N	Y	Y	Y	Y	Y	Y	Y
HP0035	0035	0035	NACC GROTON	N	Y	Y	Y	Y	N	Y	Y
N00203	0038	0038	NH PENSACOLA	N	Missing 14-23 Mar	Missing 14-23 Mar	Missing 14-23 Mar	Missing 14-23 Mar	Missing 14-23 Mar	Missing 14-23 Mar	Missing 14-23 Mar
N00232	0039	0039	NH JACKSONVILLE	N	Y	Y	Y	Y	Y	Y	Y
N00211	0056	0056	NH GREAT LAKES	N	N	Y	Y	Y	N	Y	Y
HP0091	0091	0091	NH CAMP LEJEUNE	N	Y	Y	Y	Y	Y	Y	Y
N68084	0103	0103	NH CHARLESTON	N	Y	Y	Y	Y	Y	Y	Y
N00118	0118	0118	NH CORPUS CHRISTI	N	N	Y	Y	Y	N	Y	Y
N00183	0124	0124	NMCC PORTSMOUTH	N	Y	Y	Y	Y	Y	Y	Y
HP0615	0615	0615	NH GUANTANAMO BAY	N	Y	Y	Y	Y	Y	Y	Y
HP0616	0616	0616	NH ROOSEVELT ROADS-CEIBA	N	N	N	N	N	N	N	Y
N66096	0617	0617	NH NAPLES	N	Y	Y	Y	Y	Y	Y	Y
HP0618	0618	0618	NH ROTA	N	Y	Y	Y	Y	Y	Y	Y
N68096	0620	0620	NH GUAM-AGANA	N	Y	Y	Y	Y	Y	Y	Y
N68470	0621	0621	NH OKINAWA	N	Y	Y	Y	Y	Y	Y	Y
HP0622	0622	0622	NH YOKOSUKA	N	Y	Y	Y	Y	Y	Y	Y
N68875	0623	0623	NH KEFLAVIK	N	N	N	N	N	N	N	N
N39163	0624	0624	NH SIGONELLA	N	Y	Y	Y	Y	Y	Y	Y
HP1170	1170	1170	BMC NSA BAHRAIN	N	N	Y	Y	Y	N	Y	Y
F0155	0004	0004	42ND MEDICAL GROUP-MAXWELL	F	N	Y	Y	Y	N	Y	Y
F0252	0006	0006	3rd MED GRP-ELMENDORF	F	Y	Y	Y	Y	Y	Y	Y
F0452	0009	0009	56th MED GRP-LUKE	F	Y	Y	Y	Y	N	Y	Y
F0451	0010	0010	355th MED GRP-DAVIS MONTHAN	F	N	Y	Y	Y	N	Y	Y
F0553	0013	0013	314th MED GRP-LITTLE ROCK	F	N	Y	Y	Y	N	Y	Y
HP0014	0014	0014	60th MED GRP-TRAVIS	F	Y	Y	Y	Y	Y	Y	Y
F0670	0018	0018	30th MED GRP-VANDENBERG	F	N	Y	Y	Y	N	Y	Y
F0654	0019	0019	95th MED GRP-EDWARDS	F	N	Y	Y	Y	N	Y	Y
F1051	0036	0036	436th MED GRP-DOVER	F	N	Y	Y	Y	N	Y	Y
HP0042	0042	0042	96th MED GRP-EGLIN	F	Missing 1-28 Mar	Missing 1-28 Mar	Missing 1-28 Mar	Missing 1-28 Mar	Missing 1-28 Mar	Missing 1-28 Mar	Missing 1-28 Mar
HP0043	0043	0043	325th MED GRP-TYNDALL	F	N	Y	Y	Y	N	Y	Y
HP0045	0045	0045	6th MED GRP-MACDILL	F	Y	Y	Y	Y	N	Y	Y
F1256	0046	0046	45th MED GRP-PATRICK	F	N	Y	Y	Y	N	Y	Y
F1355	0050	0050	347th MED GRP-MOODY	F	N	Missing 1-6 Mar	Missing 1-6 Mar	Missing 1-6 Mar	N	Missing 1-6 Mar	Missing 1-6 Mar
F1356	0051	0051	78th MED GRP-ROBINS	F	N	Y	Y	Y	N	Y	Y
F1651	0053	0053	366th MED GRP-MOUNTAIN HOME	F	Y	Y	Y	Y	Y	Y	Y
HP0055	0055	0055	375th MED GRP-SCOTT	F	N	Y	Y	Y	Y	Y	Y
F2057	0059	0059	22nd MED GRP-MCCONNELL	F	N	Y	Y	Y	N	Y	Y
HP0062	0062	0062	2nd MED GRP-BARKSDALE	F	N	Y	Y	Y	N	Y	Y
F2353	0073	0073	31st MED GRP-KEESLER	F	Y	Y	Y	Y	Y	Y	Y
F2351	0074	0074	14th MED GRP-COLUMBUS	F	N	Y	Y	Y	N	Y	Y
F2354	0076	0076	509th MED GRP-WHEATMAN	F	N	Y	Y	Y	N	Y	Y
F3051	0077	0077	341st MED GRP-MALMSTROM	F	N	N	Rcvd 4 Mar only	Rcvd 4 Mar only	N	Rcvd 4 Mar only	Rcvd 4 Mar only
HP0078	0078	0078	55th MED GRP-OFFUTT	F	Y	Y	Y	Y	N	Y	Y
F3251	0079	0079	39th MED GRP-O'CALLAGHAN HOSP	F	Y	Y	Y	Y	Y	Y	Y
F3552	0083	0083	377th MED GRP-KIRTLAND	F	N	N	N	N	N	N	Y
HP0084	0084	0084	49th MED GRP-HOLLOWMAN	F	N	Y	Y	Y	N	Y	Y
F3554	0085	0085	27th MED GRP-CANYON	F	N	Y	Y	Y	N	Y	Y
FJA56	0639	0639	35th MED GRP-MISAWA	F	Y	Y	Y	Y	Y	Y	Y
FIT52	0808	0808	31st MED GRP-AVIANO	F	Y	Y	Y	Y	Y	Y	Y
HP0130	aka	0130	USCG CLINIC KODIAK, AK	C	N	N	Y	Y	N	N	Y
HP0416	cen	0416	MOBILE USCG CLINIC	C	N	N	Y	Y	N	Y	Y
HP0428	eas	0428	CAPE MAY COAST GUARD CLINIC	C	N	N	Y	Y	N	N	Y
HP7043	hia	7043	HONOLULU COAST GUARD CLINIC	C	Test Site	Test Site	Test Site	Test Site	Test Site	Test Site	Test Site
HP0067	ncac	0067	NMCC BETHESDA, MD	N	Y	Y	Y	Y	Y	Y	Y
HP0418	pac	0418	ALAMEDA COAST GUARD CLINIC	C	N	N	Y	Y	N	N	Y
HP7042	pra	7042	BORINGEN COAST GUARD CLINIC	C	N	N	Y	Y	N	N	Y



# Data Quality Processes

## Problem Determination Process

### “File Level” Gaps

a. Automated Process – e.g. Nothing received as of date or

b. SADR Example: Nothing in 3 days – Email Alert

From: admtrak.edwn11\_sw@iris.den.disa.mil [mailto:admtrak.edwn11\_sw@iris.den.disa.mil]  
Sent: Monday, July 30, 2007 11:08 AM  
Subject: SADR Gaps

SADR Gaps on 07/29/2007 as of 07/30/2007

Site ID,	Medical Treatment Facility,	Days Missing,	Host,
KAFB0038,	NH PENSACOLA,	4,	edwn35_sw,
KAFB0073,	81st MEDICAL GROUP,	4,	edwn35_sw,
KAFB0316,	NBHC GULFPORT,	4,	edwn35_sw,
KAFB0436,	KGADS,NBHC NAS BELLE CHASE,	4,	edwn35_sw,
KAFB0654,	KGADS,NBHC PASCAGOULA,	4,	edwn35_sw,
KAFB1990,	KGADS,BMC MVSUPPACT EBANK,	4,	edwn35_sw,

- Note Files contain data from many encounter dates. *Files may be received daily, but these files may not correlate with CURRENT data]*

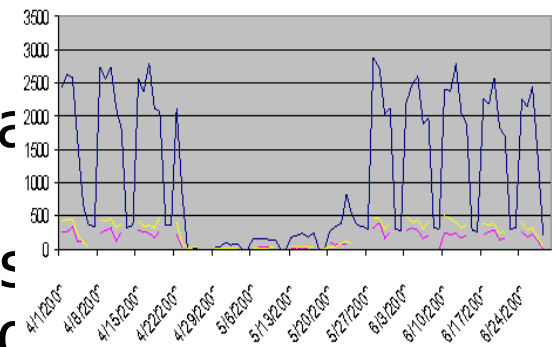
### “Encounter Date” Analysis

a. Monthly and ad hoc manual

b. E.g. Run Charts

c. NOTE: SPC Control Charts

designed to provide an automatic means to perform this activity)





# Notices of “Non Receipt”

CAPER Tracking from 11/08/2008 - 12/07/2008  
as of 12/09/2008

		12/1/2008	12/1/2008	12/2/2008	12/2/2008	12/3/2008	12/3/2008	12/4/2008	12/4/2008	12/5/2008	12/5/2008	12/6/2008	12/6/2008	12/7/2008	12/7/2008
Site ID	Medical Treatment Facility	Files	Records	Files	Records	Files	Records	Files	Records	Files	Records	Files	Records	Files	Records
VAFB0338	71st MEDICAL GROUP	1	134	1	325	1	193	1	182	1	351	1	1		
CAMP0060	BLANCHFIELD ACH	1	3070	1	3939	1	4358	1	3645	1	3244	1	277	1	1004
CAMP1506	AVIATION MEDICINE CLINIC	1	22	1	147	1	66	1	62	1	21	1	1	1	1
CAMP7307	LA POINTE HEALTH CLINIC	1	269	1	622	1	507	1	482	1	565	1	1	1	1
DAFB0112	7th MEDICAL GROUP	1	353	1	554	1	516	1	477	1	596	1	25		
FOXA0001	FOX ARMY HEALTH CENTER	1	445	1	728	1	644	1	439			1	13	1	23
KAFB0038	NH PENSACOLA	1	1	1	1	1	1	1	1	1	1	1	1		
MAFB0081	PATTERSON AHC	1	64	1	221	1	349	1	328			1	24	1	1
MAFB0322	BMC COLTS NECK EARLE	1	6	1	11	1	8	1	13			1	1	1	1
MAFB0325	PICATINNY ARSENAL AHC	1	1	1	1	1	1	1	1			1	1	1	1
SIGO0624	NH SIGONELLA	1	125	1	376	1	159	1	257	1	258	1	25	1	1
SIGO0858	BMC NAVSUPACT SOUDA BA	1	4	1	11	1	18	1	10	1	17	1	4	1	1
WAFB0129	90th MEDICAL GROUP	1	277	1	331	1	320	1	278	1	234	1	12	1	2
WOOD0075	L. WOOD ACH	1	2237	1	2214	1	2284	1	2003	1	2103	1	198		
PENS0357		1	21	1	44	1	30	1	27	1	21	1	1	1	1

Example of a site  
where notice provided  
of lack of data (file)  
receipt.



# Data Quality Processes

## Problem Resolution Process

IF “file level” OR “encounter date level”  
problem detected:

- Immediate MHS Help Desk Ticket
- Notification if problem is deemed “significant and/or long standing”
- Determination if “Blaster” message to analytical community is appropriate or required. Note that individual site “transient” halts in transmission occur regularly and are usually resolved quickly. These “transient” problems are not reported in real time as M2 utilizes a batch process and problems are often resolved between batch processing cycles.
- Coordination with “Service POCs” to determine if problem also exists in “Service” databases.
- Recovery of files via sharing between service databases and DHSS



# Data Quality Processes



## Common Problems – In Order of Occurrence

### 4 Broad Categories

- Provider/Coding Issues
  - “Slow Coding” for the data receipt perspective
  - Provider “left”
- Transmission/Send of Data
  - Sy\_ETU Problems
  - Host Issues (e.g. Change Package induced problems)
- Network Routing Issues
- Ingest or Processing



# Data Quality Tools

## Partial List of Standard Reports from the EIDS Web Portal Data Tracker Database

- **HL7 tracking:** Displays a tabular view of file submission history for each HL7 site.
- **SADR gaps:** Displays a list of sites, by ADS version, that did not report data for at least a fixed number of days
- **SADR lags:** Displays the mean and standard deviation of the reporting lag for each site, by ADS version.
- **SADR scores:** Displays a SADR transmission completeness report. For each site, by ADS version, a completion percentage is listed. assumed.
- **SADR tracking:** A tabular view of file and record submission history for each site, by ADS version. Each column corresponds to a file date.
- **SADR treatment DMIS ID gaps:** Displays a list of treatment DMIS IDs that did not report data for at least a fixed number of days.
- **SADR treatment DMIS ID scores:** A SADR transmission completeness report. For each treatment DMIS ID, a completion percentage is listed.
- **SADR treatment DMIS ID tracking:** Displays a tabular view of record submission history for each treatment DMIS ID.
- **SADR treatment DMIS ID (by visit type) tracking:** Displays a tabular view of record submission history for each treatment DMIS ID. The displayed counts indicate the number of unique SADR data records, determined by appointment prefix and appointment identifier number.
- **SADR gaps:** A list of reporting sites that did not report data for a fixed



# Data Quality Tools (continued)

- **GCPR sites:** Displays a list of GCPR sites by Service, region, and DMIS ID, allowing the user to review the mapping of GCPR sites to DMIS IDs.
- **GCPR tracking:** Displays a tabular view of file submission history for each GCPR site. Each column corresponds to a date within the range specified.
- **HL7 gap:** Displays a list of sites that did not report data for at least a fixed number of days, as specified by the user query.
- **PDTS gap:** Displays a line if PDTS data has not been reported for at least a fixed number of days, as specified by the user query.
- **PDTS tracking:** Displays a tabular view of file submission history for PDTS. Each column corresponds to a file date within the range specified.
- **Ancillary Tracking:** Displays a tabular view of file and record submission history for each reporting DMIS ID. Each column corresponds to a file date within the selected range.
- **Ancillary Gap:** Displays a list of reporting DMIS IDs, that did not report data for at least a fixed number of days.
- **Ancillary treatment DMIS ID Tracking:** Displays a tabular view of record submission history for each ancillary performing DMIS ID. Each column corresponds to a service date within the range specified. The displayed counts indicate the number of unique ancillary data records, as determined by the accession number for laboratory, exam number for radiology, and prescription number for pharmacy.
- **Ancillary treatment DMIS ID Gap:** Displays a list of performing DMIS IDs that did not report data for at least a fixed number of days, as specified by days, up to and including the ending service date, as specified.
- **Appointment treatment DMIS ID Tracking:** Displays a tabular view of record submission history for each appointment treatment DMIS ID. Each column corresponds to an appointment date within the inclusive range specified by the



# Data Quality Tools



Allow DHSS to

- Catalog data files
- Monitor data completeness
- Provide metrics to assess data quality/completeness of data received
- Design, develop and maintain data quality software



# The Key To Data Quality Success



- Partnering with our users to maximize information sharing
- Questions?



# Contact DHSS

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- DEERS Point-in-Time Extract (PITE) - Eligible Beneficiaries
- Expense Assignment System IV (EAS IV)
- Health Care Provider Record (HCPR)
- Health Care Service Record (HCSR)
- Institutional Claims Record (HCSR)
- Health Care Service Record (HCSR) Professional Claims
- Health Level 7 (HL-7)
- Non-Availability Statements (NAS)
- Pharmacy Data Transaction Service (PDS)
- Standard Ambulatory Data Record (SADR)
- Standard Inpatient Data Record (SIDR)
- TRICARE Encounter Data (TED) Claims
- TRICARE Enrollment File
- Worldwide Workload Report

**EI/DS: Did you know...?**

The MCFAS Beneficiary Population Forecasting Model is a powerful MHS application for analyzing and forecasting beneficiary demographics. Variations in age, gender, locality, and beneficiary entitlement status can be tracked and projected over an 8-year planning horizon.

**Dates to Remember**

- TRICARE Conference - **24 Jan 2005**
- HIMSS Conference - **13 Feb 2005**

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